

## TCT-454

**Peri-procedural Myocardial Infarction in Chronic Total Occlusion Percutaneous Coronary Interventions: a Systematic Cardiac Biomarker Evaluation Study**

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**Background:** The risk of peri-procedural myocardial infarction (MI) during percutaneous coronary intervention (PCI) of chronic total occlusions (CTOs) is reported to be low, however it may be underestimated because systematic cardiac biomarker measurement was not performed in prior studies.

**Methods:** We retrospectively examined the incidence of peri-procedural MI among 325 consecutive CTO PCIs performed at our institution between 2006 and 2012. Creatine kinase MB fraction (CK-MB) and troponin T or I was measured before PCI and after 8-12 and 18-24 hours in all patients. Myocardial infarction was defined as CK-MB increase >3x upper limit of normal.

**Results:** Mean age was 64 ± 10 years, 99 % or patients were men, 47% had diabetes, 26 % had prior coronary artery bypass graft surgery and 47% had prior PCI. The CTO target vessel was the right coronary artery (56%), left anterior descending artery (21.5%), circumflex (20.5%), and left main or bypass graft (1%). The retrograde approach was used in 26.3% of all procedures. The technical and procedural success rates were 77.2% and 76%, respectively. The mean procedural time, fluoroscopy time, radiation dose and contrast utilization was 141±72 minutes, 40±22 minutes, 4.6±2.4 Gray and 356±146 ml, respectively. Peri-procedural MI occurred in 28 of 325 patients (8.6%). Seven of those patients had ischemic symptoms. The prevalence of peri-procedural cardiac troponin elevation >3x, >10x, and >20x upper limit of normal was 57%, 24% and 7.6%, respectively. The incidence of peri-procedural MI was similar among patients with procedural failure vs. procedural success (11.8% vs. 7.6%, p=0.26), but was higher with the retrograde compared to the antegrade approach (13.8% vs. 6.7%, p=0.04).

**Conclusions:** Systematic measurement of cardiac biomarkers post CTO PCI demonstrates that peri-procedural MI occurs in 8.6% of patients and is more common with the retrograde approach.

## TCT-455

**Coronary Chronic Total Occlusion Revascularization: Immediate Procedural Outcomes from a Multicenter US Registry**

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**Background:** Percutaneous coronary intervention (PCI) of chronic total occlusions (CTOs) is a rapidly evolving area of interventional cardiology. We examined the outcomes of CTO PCI from a multicenter United States registry.

**Methods:** We retrospectively examined the procedural outcomes of 1363 consecutive CTO PCIs performed at 3 US institutions [St. Joseph Medical Center, Bellingham Washington (n=728), Piedmont Hospital, Atlanta Georgia (n=361) and VA North Texas Healthcare System, Dallas, Texas (n=275)] between January 2006 and November 2011.

**Results:** Mean age was 65 ± 10 years, 85% or patients were men, 40% had diabetes, 37% had prior coronary artery bypass graft surgery and 42% had prior PCI. The CTO target vessel was the right coronary artery (55%), circumflex (23%), left anterior descending artery (21%), and left main or bypass graft (1%). The retrograde approach was used in 34.4% of all procedures. The technical and procedural success rate was 85.5% and 84.2%, respectively. The mean procedural time, fluoroscopy time and contrast utilization was 114±63 minutes, 42± 29minutes, and 296±160 ml, respectively. A major procedural complication occurred in 24 patients (1.8%): 3 patients died (1 due to intracranial bleeding, 1 due to delayed cardiac tamponade, 1 due to coronary perforation), 5 had Q-wave myocardial infarction, 2 donor vessel dissections (one requiring coronary bypass graft surgery and one treated with stenting), 2 had equipment entrapment requiring coil occlusion of a ventricular septal defect and the other requiring emergent surgery, 1 had acute stent thrombosis, 1 had a transient ischemic attack and 10 patients had perforations requiring pericardiocentesis or emergent surgery.

**Conclusions:** Among 3 high-volume US centers, CTO PCI can be performed with high success and low complication rates, with use of the retrograde approach in approximately one third of patients.

## TCT-456

**Radial Approach to CTO Re-canalisation is as Successful and Safer than Femoral: Single centre observational study**

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**Background:** Despite increasing application of the radial route for PCI, recanalization of chronic total occlusion has remained largely a trans-femoral procedure, to allow use of larger catheters and achieve powerful support. We adopted the radial approach as routine for all PCIs including CTOs starting 2007 and observed satisfactory treatment of CTOs. In this study, we sought to compare procedural outcomes of radial versus femoral approach to CTO reopening.

**Methods:** This is a single center observational study of consecutive patients who had CTO recanalization or attempted reopening. Study patients were identified from a prospectively maintained interventional database. Clinical background, procedure detail and outcome were reviewed and analyzed.

**Results:** 162(93 radial, 69 femoral) consecutive patients had recanalization or attempted recanalization of CTO. Mean age is 65.5 years and males constitute 84.4%. There were no significant differences in baseline characteristics or in target artery between the two groups. All occlusions were > 6months and up to 12 years. Bilateral radial access was used in 31.2%; unilateral radial in 66.7% and 2 cases had radial + femoral 5F diagnostic for contra-lateral injection. RCA was target artery in 53.0 % and 97.2 % had multi-vessel disease. Overall success rate was 74.7% and trans-radial vs. trans-femoral was 83.9 vs. 62.3 % (P-value 0.01). The mean fluoroscopy time was 24.9 minutes and was similar for both groups. No significant difference in contrast use and radiation dose was observed. Access site complications were higher among trans-femoral group. One pseudo-aneurysm and 2 major bleedings were encountered in the femoral group where as systemic and coronary complications are similar for both group.

**Conclusions:** Radial approach for CTO re-canalisation did not hamper success and actually was associated with higher success rates than femoral approach, probably thanks to improved guide-wire and supporting micro-catheter technology during the last 5 years covered. Lower complication rates, with similar radiation exposure and contrast use encourage us to persist with the radial access including bilateral radial approach to CTOs as the default strategy than double femoral

## STEMI/NSTEMI

## Hall D

Tuesday, October 23, 2012, 8:00 AM–10:00 AM

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## TCT-457

**The use of a dedicated coronary bifurcation stent in patients presenting with myocardial infarction**

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**Background:** We previously reported promising outcomes after treatment of coronary bifurcation lesions with the Tryton Side Branch Stent™ in more than 900 patients. Surprisingly, acute coronary syndrome (ACS) as percutaneous coronary intervention (PCI) indication did not predict for adverse outcomes compared to patients without ACS. Therefore, we evaluated the differences in clinical outcomes between patients presenting with stable/unstable angina, NSTEMI and STEMI.

**Methods:** Patients with stable/unstable angina, NSTEMI or STEMI as PCI indication were included. One-year clinical outcomes were stratified according to indication and reported as the composite of cardiac death and myocardial infarction (MI), clinically indicated target vessel revascularization (TVR), definite/probable stent thrombosis (ST) and target vessel failure (TVF; composite of any death, MI, and clinically indicated TVR). Procedural success was defined as successful stent placement and no in-hospital TVF.

**Results:** We included 786 patients (79% stable/unstable angina, 14% NSTEMI, 7% STEMI). In patients treated for STEMI, death/MI, clinically indicated TVR, and TVF rates were higher than in patients without STEMI. However, these differences were not